

~~APPRO~~ AFTER FINAL

09/617,104

REMARKS

This Request for Reconsideration is being filed in response to the final Office Action dated May 2, 2003. For the following reasons, this application should be considered in condition for allowance and the case passed to issue.

The allowance of claims 7-10 and 13-14 is gratefully acknowledged. The only remaining issues are whether claims 6 and 11-12 are properly rejected. Please note that only the rejection of claim 6 under 35 U.S.C. § 102(e) is discussed in the body of the final Office Action of May 2, 2003. However, claims 11 and 12 are indicated as also being rejected on page 1 of the Office Action, but no details as to the rejection were provided. Hence, it is assumed that claims 11-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eldridge in view of Hayes, repeating the rejection made in the Office Action of November 21, 2002. In any event, these rejections should be reconsidered and withdrawn for the reasons set forth below.

The present invention, as provided in claim 6, relates to an apparatus for depositing flux on a semiconductor chip and comprises a jet printing head for printing a flux pattern on flip-chip bumps. The flux pattern is substantially identical to an arrangement pattern of the plurality of flip-chip bumps on the semiconductor chip, such that the flux is deposited substantially only on the flip-chip bumps. As will be discussed below, the Eldridge reference, cited by the Examiner as anticipating claim 6, fails to identically disclose each and every element of claim 6. Accordingly, Eldridge cannot anticipate claim 6 within the meaning of 35 U.S.C. § 102(e).

It was previously argued by the Applicant that a review of Eldridge does not reveal any disclosure of providing flux onto flip-chip bumps. The Examiner disputes this

contention and directs applicants to column 1, lines 1-68. It is asserted in the Office Action that "the reference as a whole teaches the limitation of providing flux and also discloses flip-chips. The subject matter as a whole provides an apparatus that can apply materials to integrated circuits (which includes flip-chips as described in column 1, lines 23-24) as well as solder bumps and fluxes." Applicants agree that Eldridge discloses flip-chips, as well as the dispensing of flux. However, the Examiner still failed to specifically point out where Eldridge explicitly the depositing of flux onto flip-chip bumps. Column 1, lines 1-68 do not disclose such a feature. Instead, referring now to column 1, lines 13-16, a technology is described that involves the deposition of small solder bumps on the bond pads of integrated circuits to assist in their subsequent packaging. One of the most efficient and compact packaging schemes utilizing such solder bumps is the so-called flip-chip approach. It is the creation of the solder bumps themselves that column 1, lines 1-68 describe, and not the deposition of flux on such solder bumps. Hence, the passage in column 1, lines 1-68 relied upon by the Examiner fails to identically disclose deposition of flux onto flip-chip bumps. Further, the Examiner's reference to column 8, lines 28-33, merely describes the possible ejection of a wide range of materials, including tacky and etching fluxes. This does not describe on what structure such tacky and etching fluxes should be deposited, and not with the particularity required to form a rejection based on 35 U.S.C. § 102(e). Close enough is not good enough. A rejection based on anticipation must show identically each and every element of the claim.

Additionally, it is noted that claim 6 does not merely provide for the deposition of flux onto flip-chip bumps. Instead, claim 6 requires a jet printing head for printing a flux pattern. Beyond this, claim 6 requires that the flux pattern is substantially identical to an

arrangement pattern of the plurality flip-chip bumps on the semiconductor chip, such that the flux is deposited substantially only on the flip-chip bumps. In the final rejection, it is noteworthy that the Examiner provided no indication as to where Eldridge disclosed that the flux pattern was substantially identical to an arrangement pattern of flip-chip bumps on the semiconductor chip, such that the flux is deposited substantially only on the flip-chip bumps. Creation of a flux pattern substantially identical to an arrangement pattern of plurality of flip-chip bumps on semiconductor chip was not described or disclosed in Eldridge. This feature of claim 6 is therefore not identically disclosed in Eldridge. The Examiner has not satisfied the heavy burden under 35 U.S.C. § 102(e) to establish a *prima facie* case of anticipation. Eldridge fails to explicitly disclose even the deposition of flux onto flip-chip bumps. It cannot possibly, therefore, be considered to disclose depositing the flux in a flux pattern substantially identical to an arrangement pattern of the plurality of flip-chip bumps on the semiconductor chip.

For these reasons, the Applicants respectfully request reconsideration and withdrawal of the rejection of claim 6 under 35 U.S.C. § 102(e).

Claims 11-12 are assumedly rejected under 35 U.S.C. § 103(a) as being obvious based on Eldridge and Hayes. Since Hayes fails to overcome any of the deficiencies noted with respect to Eldridge, the combination of these references cannot make obvious claims 11-12 which further limit and define claim 6. Reconsideration and withdrawal of the rejection of claims 11-12 under 35 U.S.C. § 103(a) are respectfully requested.

In light of the remarks above, this application should be considered in condition for allowance and the case passed to issue. If there are any questions regarding this

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Request or the application in general, a telephone to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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